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WHAT IS CLAIMED IS:

- 1. A method for alleviating or reducing the toxic, nutritional and metabolic disturbances associated with cancer and cancer chemotherapy comprising: administering to a patient a composition comprising an effective amount of riboflavin, an effector of the urea cycle, and the amino acids alanine, glycine, serine, taurine, threonine and valine.
- 2. A method according to claim 1 wherein the effector of the urea cycle is arginine, ornithine or citrulline.
- 3. The method of claim 1 wherein the amino acids are in free form or pharmacologically acceptable salts.
- 4. The method of claim 1, wherein the concentration of riboflavin is about 5 to about 300 mg/L.
- 5. The method of claim 1, wherein the concentration of the effector of the urea cycle is about 2 to about 120 mg/L.
- 6. The method of claim/1, wherein the concentration of alanine is about 1 to about 90 mg/L, the concentration of glycine is about 1 to about 75 mg/L, the concentration of serine is about 1 to about 75 mg/L, the concentration of threonine is about 1 to about 90 mg/L and the concentration of valine is about 1 to about 50 mg/L.
- 7. The method of claim 1, wherein said composition is administered enterally or parenterally.
- 8. The method of claim 1, wherein composition is administered intravenously.

- 9. The method of claim 1, wherein said composition further comprises at least one pharmaceutically-acceptable carrier, diluent, or excipient.
- 10. The method of claim 1 wherein the composition consists of riboflavin, arginine, alanine, glycine, serine, taurine, threonine, valine and a pharmaceutically-acceptable carrier or diluent.
- 11. The method of claim 10, wherein the concentration of riboflavin is about 5 to about 300 mg/L, the concentration of arginine is about 2 to about 120 mg/L, the concentration of alanine is about 1 to about 90 mg/L, the concentration of glycine is about 1 to about 75 mg/L, the concentration of serine is about 1 to about 75 mg/L, the concentration of taurine is about 0.5 to about 30 mg/L, the concentration of threonine is about 1 to about 90 mg/L and the concentration of valine is about 1 to about 50 mg/L.
- 12. The method of claim 1, wherein the composition consists of riboflavin, ornithine, alanine, glycine, serine, taurine, threonine, valine and a pharmaceutically-acceptable carrier or diluent..
- 13. The method of claim/12, wherein the concentration of riboflavin is about 5 to about 300 mg/L, the concentration of ornithine is about 2 to about 120 mg/L, the concentration of alanine is about 1 to about 90 mg/L, the concentration of glycine is about 1 to about 75 mg/L, the concentration of serine is about 1 to about 75 mg/L, the concentration of taurine is about 0.5 to about 30 mg/L, the concentration of threonine is about 1 to about 90 mg/L and the concentration of valine is about 1 to about 50 mg/L.
- 14. A pharmaceutical composition for alleviating or reducing the toxic, nutritional and metabolic disturbances associated with cancer and cancer chemotherapy comprising: an effective amount of riboflavin, an effector of the urea cycle, and the amino acids alanine, glycine, serine, taurine, threonine, and valine.
- 15. The pharmaceutical composition of claim 14, wherein the effector of the urea cycle is selected from arginine, ornithine or citrulline, wherein the effector is in free form or a pharmacologically acceptable salt.

- 16. The pharmaceutical composition of claim 14 wherein the amino acids are in free form or pharmacologically acceptable salts.
- 17. The pharmaceutical composition of claim 14, wherein the concentration of riboflavin is about 5 to about 300 mg/L.
- 18. The pharmaceutical composition of claim 1/4, wherein the concentration of the effector of the urea cycle is about 2 to about 120 mg/L.
- 19. The pharmaceutical composition of claim 14, wherein the concentration of alanine is about 1 to about 90 mg/L, the concentration of glycine is about 1 to about 75 mg/L, the concentration of serine is about 1 to about 75 mg/L, the concentration of taurine is about 0.5 to about 30 mg/L, the concentration of threonine is about 1 to about 90 mg/L and the concentration of valine is about 1 to about 50 mg/L.
- 20. The pharmaceutical composition of claim 14, having a pH of about 6.0 to about 7.0.
- 21. The pharmaceutical composition of claim 14, further comprising at least one pharmaceutically-acceptable carrier, diluent, or excipient.
- 22. The pharmaceutical composition of claim 14, consisting of riboflavin, arginine, alanine, glycine, serine, taurine, threonine, valine and a pharmaceutically-acceptable carrier or diluent.
- 23. The pharmaceutical composition of claim 22, wherein the concentration of riboflavin is about 5 to about 300 mg/L, the concentration of arginine is about 2 to about 120 mg/L, the concentration of alanine is about 1 to about 90 mg/L, the concentration of glycine is about 1 to about 75 mg/L, the concentration of taurine is about 30 mg/L, the concentration of threonine is about 1 to about 90 mg/L and the concentration of valine is about 1 to about 50 mg/L.

- 24. The pharmaceutical composition of claim 14, consisting of riboflavin, ornithine, alanine, glycine, serine, taurine, threonine, valine and a pharmaceutically-acceptable carrier or diluent..
- 25. The pharmaceutical composition of claim 24, wherein the concentration of riboflavin is about 5 to about 300 mg/L, the concentration of ornithine is about 2 to about 120 mg/L, the concentration of alanine is about 1 to about 90 mg/L, the concentration of glycine is about 1 to about 75 mg/L, the concentration of taurine is about 30 mg/L, the concentration of threonine is about 1 to about 90 mg/L and the concentration of valine is about 1 to about 50 mg/L.
- 26. A method for alleviating or reducing the toxic, nutritional and metabolic disturbances associated with cancer and cancer chemotherapy comprising: administering to a patient a composition comprising an effective amount of riboflavin, an effector of the urea cycle comprising arginine and ornithine, and the amino acids alanine, glycine, serine, threonine and valine.
- 27. The method of claim 26, wherein the composition further comprises 3-phenylacetylamino-2,6-piperidinedione.
- 28. The method of claim 26, wherein the composition consists of 0.01-10 wt % riboflavin, 1-15 wt % arginine, and 1-15 wt % ornithine, 1-15 wt % alanine, 1-15 wt % glycine, 1-15 wt % serine, 1-15 wt % threonine 1-15 wt % valine, and 25-75 wt % 3-phenylacetylamino-2,6-piperidinedione.
- 29. A pharmaceutical composition for alleviating or reducing the toxic, nutritional and metabolic disturbances associated with cancer and cancer chemotherapy comprising: an effective amount of riboflavin, an effector of the urea cycle comprising arginine and ornithine, and the amino acids alanine, glycine, serine, threonine and valine.
- 30. The pharmaceutical composition of claim 29, further comprising 3-phenylacetylamino-2,6-piperidinedione.

31. The pharmaceutical composition of claim 29, consisting of 0.01-10 % riboflavin, 1-15 % arginine, and 1-15 wt % ornithine, 1-15 wt % alanine, 1-15 wt % glycine, 1-15 wt % serine, 1-15 wt % threonine 1-15 wt % valine, and 25-75 wt % 3-phenylacetylamino-2,6-piperidinedione.





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